

APPENDIX A

Amended claims, marked to show changes:

1. (Twice Amended.) An optical inspection system for inspecting at least one structure on a surface of an object, said system comprising:

a first visual light source [which] that illuminates the surface of the object and the structure with [a] light at a first visual frequency;

a first coherent light source [which] that illuminates the surface of the object with a narrow coherent light beam creating an illumination path, substantially simultaneously with illumination by the first visual light source, said coherent light beam being at a second visual frequency that is different from the first visual frequency of the visual light source, said first coherent light source being mounted [off vertical] on a movable mount [which enables] such that illumination path created by the coherent light beam [to] can be directed over an area of interest on the surface of the object;

a color [scan] camera mounted [vertically] above the object, said camera having a first channel [which] that captures an image of the illuminated surface of the object and the structure at the first visual frequency, and a second channel [which] that captures a path of the coherent light beam as it strikes the surface of the object and the structure at the second visual frequency; and

a computer [which] that determines two-dimensional structure information from the image at the first visual frequency, and determines height information for the structure from the [path] image reflected of the coherent light beam at the second visual frequency.

2. (Amended) The optical inspection system of claim 1 further comprising a second visual light source [mounted on an opposite side of the object from the first visual light source, said second visual light source] for illuminating the surface of the object and the structure with [a] light at a third visual frequency.

3. (Amended) The optical inspection system of claim 2 wherein the color [scan] camera includes a third channel [which] that captures an image of the illuminated surface of the object and the structure at the third visual frequency.

5. (Amended) The optical inspection system of claim 4 wherein the color [scan] camera includes means for making a continuous series of exposures as the camera scans the surface of the object.

6. (Amended) The optical inspection system of claim 5 wherein the means in the color [scan] camera for making a continuous series of exposures includes means for varying the length of [each exposure] the exposures.

7. (Amended) The optical inspection system of claim [6] 1 wherein the computer includes means for integrating the height information over the length of an exposure to calculate an average height.

9. (Twice Amended) A method of inspecting at least one structure on a surface of an object, said method comprising the steps of:

illuminating the surface of the object and the structure with a first visual light at a first visual frequency;

[simultaneously] illuminating at substantially the same time the surface of the object with a first narrow coherent light beam at a second visual frequency that is different from the first visual frequency[, said first coherent light beam striking the surface of the object at an angle of incidence less than 90 degrees];

directing the coherent light beam in a path covering an area of interest on the surface of the object;

capturing an image of the illuminated surface of the object and the structure at the first visual frequency utilizing a first channel of a color [scan] camera mounted vertically above the object;

[simultaneously] capturing at substantially the same time [the path] an image of the coherent light beam at the second visual frequency utilizing a second channel of the color scan camera as the coherent light beam strikes the surface of the object and the structure;

determining two-dimensional structure information from the image at the first visual frequency; and

determining height information for the structure from the [path] image of the coherent light beam at the second visual frequency.

10. (Amended) The method of inspecting at least one structure on a surface of an object of claim 9 further comprising illuminating the surface of the object and the structure with a second visual light at a third visual frequency[, the second visual light being mounted on an opposite side of the object from the first visual light].

11. (Amended) The method of inspecting at least one structure on a surface of an object of claim 10 further comprising [simultaneously] capturing an image of the illuminated surface of the object and the structure at the third visual frequency utilizing a third channel of the color scan camera.

13. (Amended) The method of inspecting at least one structure on a surface of an object of claim 12 wherein the step of simultaneously capturing the path of the laser beam includes making a continuous series of exposures with the color [scan] camera as the camera scans the surface of the object.

14. (Amended) The method of inspecting at least one structure on a surface of an object of claim 13 wherein the step of making a continuous series of exposures includes varying the length of [each exposure] the exposures.

15. (Amended) The method of inspecting at least one structure on a surface of an object of claim [14] 9 further comprising integrating the height information over the length of an exposure to calculate an average height.

16. (Twice Amended) The method of inspecting at least one structure on a surface of an object of claim 9 further comprising illuminating the surface of the object with a second coherent light source mounted on a side of the object [which] that is displaced 90 degrees from the first coherent light source, said second coherent light source illuminating the surface in a path that is perpendicular to the path illuminated by the first coherent light source.